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ABSTRACT

A context is proposed that not only focuses career exploration in a logical way, beginning with the decision maker and moving to occupations, but also helps organize the process of decision making. Decision makers are seen as part of the context, for they have values, aptitudes, and resources that are relevant to choices of occupations. For career decision making, occupations are construed along dimensions that are most useful to the decision maker. These dimensions are the ones that, in the occupation, correspond to the values, aptitudes, and resource dimensions of the decision makers. They are rewards, requisites, and investments. The goal of the decision, then, is the maximization of values satisfaction within the limits of aptitudes and resources. Information also requires a place in the decision-making process, since decision makers require two classes of information--information about occupations and information about themselves. Applications of the context include development of a curriculum for career decision making, improvement of occupational information, and improved decision making. (YLB)

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RESEARCH REPORT

A CONTEXT FOR CAREER DECISION MAKING

Warren Chapman

U.S. DEPARTMENT OF EDUCATION
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A CONTEXT FOR CAREER DECISION MAKING

Two recent studies directed by the author and his colleague Martin R. Katz have produced evidence that high school students take only small advantage of the career information resources available to them (Chapman & Katz, 1981, 1982a, 1982b). The studies were conducted by Educational Testing Service for the National Institute of Education, which was serving as the agent for the National Occupational Coordinating Committee.

The bottom line for the studies was

> that the students lack a usable context in which to place and process the mountains of information contained in the resources. . . . The missing context for making these materials available to students is, first, knowledge of the learner--his or her values, aptitudes, or resources in the form of time, money, motivation, and stamina necessary for pursuit of occupational goals; and, second, an explicit decision-making strategy that helps students interpret and use information. (Chapman & Katz, 1982b, p. 11)

In reaching this conclusion, the researchers were guided in part by the work of Katz (1963, 1966, 1968, 1969, 1973, 1974) in illuminating the role of values in career exploration and decision making. This article attempts to describe what a useful context for career decision making might be.

Basic Premise

The basic premise behind the framework is contained in an observation by Katz (Katz & Chapman, 1978, p. 57) that career guidance resembles instruction

> in that it aims to provide the acquisition of knowledge, the development of understanding, and the mastery of competencies. It differs, however, in that a substantial portion of the knowledge must be derived from the learner himself. In guidance, the learner is part of the context.

This idea has important implications for the way that occupational information is organized and delivered as well as for the way that guidance is conducted. If the learner (here called the decision maker or DM) is part of the context, there are two realms of knowledge to be considered, not just one. DMs need knowledge of the objects of choice and knowledge of themselves as choosers. Moreover, career guidance cannot stop with the mere acquisition of the two domains of knowledge as separate entities, but must concern itself with how the two domains can be brought together in some way useful to the learner. This juxtaposition should serve the needs of career exploration as well as career decision making. Jepsen, Dustin, and Miars (1982, p. 150) have noted that "career exploratory behavior and career decision making behavior are distinctive dimensions of adolescent career development, both conceptually and empirically." Exploration involves activity, decision making involves thought. The framework proposed here should help DMs with both processes.

Since DMs are part of the context, we begin construction of the framework with them. DMs have certain values, aptitudes, and resources that are relevant to choice of occupation. Values vary in their importance to individual DMs, and of course aptitudes and resources vary too. This concept of the learner is shown in the lower portion of Figure 1. The heights of the columns show that the

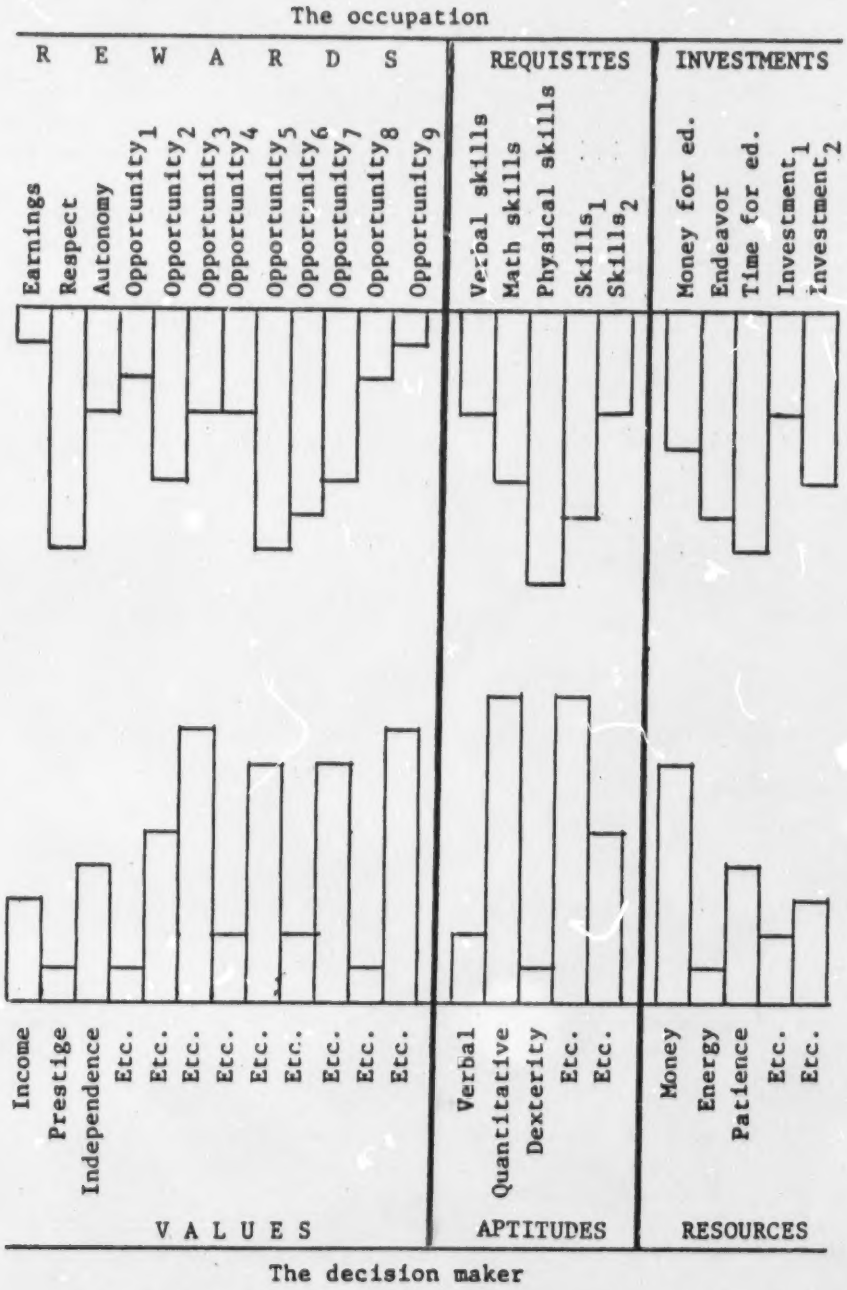

Figure 1. The relationship of occupation to decision-making. The decision-maker has values, aptitudes, and resources relevant to the decision. The occupation has the capacity to satisfy certain values (satisfactions), and demands certain aptitudes for performance (requisites) and expenditures of resources for attainment (investments). Variations in the height of the columns show variability in importance, amount, capacity, or demand.

values vary in their importance and that aptitudes and resources are not uniformly available. The label Etc. affixed to many of the columns shows that the figure makes no attempt to be exhaustive.

Values. Values, in the context of decision making, are the satisfactions, rewards, and preferences that DMs would like to secure or control in their choice of options. Thus if DMs want a high salary and freedom from onerous supervision in their work, high income and independence are valued by these DMs. Other readily recognizable values are prestige, opportunity for altruism, opportunity for leadership, variety in work activities and settings, and so on. For midcareer changers and returning women, other values may appear--work in a particular geographical location, flexi-time, employment of previously acquired skills, availability of child care, and many more.

To qualify under this definition, the "value" must meet four criteria: (1) It must be relevant to the decision. A DM's personal values with respect to art, food, religion, politics, and many other aspects of life are not generally relevant to a decision about occupations.

(2) It must be capable of definition in concrete, operational terms that are readily understood by the DMs. The concept of the value must be clear enough in their minds that they can recognize opportunities to satisfy it. Thus such vague global aspirations as "happiness," "a good job," "interesting work" are usually unsatisfactory values for career choice because they are at too high a level of abstraction. What do they refer to in the physical world

of occupations? In this writer's mind, values like "success," "love," and "self-actualization" are laudable but unusable for the same reason. They are subjectively definable (i.e., as how one feels about one's state), but not objectively as a set of activities and conditions of work. Therefore they cannot be used to differentiate occupations until they have been redefined concretely and attached to external reality. Yet some career decision-making systems go through the motions of using such constructs. "Creativity" suffers the same problem, though less severely. Perhaps some DMs can define it in terms of activities that make them feel creative, but most think stereotypically of artists, writers, and composers.

(3) The value must be one that discriminates between options. DMs must be able to rate their options as more or less satisfactory with respect to the value. If all options are alike in the opportunity they offer to satisfy the value, the value provides no basis for choosing between them.

(4) It must be relatively independent of the other values. That is, it should not cover so much of the same territory that it yields only redundant information.

This definition of values will undoubtedly fail to satisfy many readers. Equating values with mere preferences or satisfactions that are sought seems to demean the term values. But here we are not interested in values in a philosophical sense. We are seeking a term that comprehends the idea of attempting to achieve personal objectives through the outcomes of a course of action. Although

values have a higher status than preferences and a degree of permanence that preferences lack, both values and preferences motivate actions to achieve a state in which the value or preference is satisfied. As far as action is concerned, the difference between value and preference lies in their importance to the DM. The value is clearly the more important and durable, and if conflict arises between satisfying a value or a preference, the latter will be sacrificed to obtain the former.

Nor is it necessary to distinguish between intrinsic and extrinsic values or instrumental and terminal values. We are concerned with values as objectives to be realized through a course of action. For some persons an intrinsic value may be more important than an extrinsic one, or an instrumental value more important than a terminal one. In that case the decision is made in a way that maximizes the opportunity to satisfy the more important value regardless of its nature.

Aptitudes. The DM also has an array of aptitudes and occasionally talents, some of which may have been developed into abilities and skills. In this paper, the term aptitudes will be used to cover all capabilities that are predictive of success--that is, what the DM can do or can learn to do successfully. It should be recognized that observations of aptitudes do not provide forecasts of success or failure, but provide information about probabilities of various outcomes. The array may be quite large, ranging from the standard quantitative and verbal aptitudes that seem related to success in college coursework (if not life), to special abilities in

the fields of arts and crafts and athletics. They are defined as they may have been developed at a given time without prejudice as to the degree to which they may change in response to new experiences and interventions.

As with values, a person may possess innumerable aptitudes that are not relevant to choice of occupation or at least to choice of a particular occupation. Unusual athletic competence will be important for a future professional athlete but will be irrelevant to the choice of most other occupations.

Resources. DMs also bring to the decision resources that they can use in implementing a decision. A resource is any supply that can be drawn on. The most obvious resource is money to pay for the required education and training, but there are other resources as well, mostly psychic. If people wish to become surgeons and have the ability and means to realize this goal, they will still need a healthy bank account in the form of motivation, energy, time, and perseverance. All these assets, which seem distinct from aptitudes, are resources.

Overlap. This classification is organized on the principle of function. Anything qualifies as a value if, in the DM's scheme of things, it functions as a reward sought in the occupation. Thus DMs may have talents or abilities that they want to employ in their work. Exercise of the ability is, for these DMs, a value as well as an aptitude. Similarly, for some persons a resource may function as a value. For example, job changers may seek occupations that utilize their previous education and experience.

In function, values provide the objective of the decision, as well as the gauge for measuring its payoff--i.e., its satisfactoriness. Aptitudes and resources provide the framework that makes attainment of the objective possible, risky, or highly improbable.

The Occupation

Occupations can be construed in different ways--from the perspective of the psychologist or the economist or the sociologist. Each perspective will emphasize a different aspect of the occupation (Temme, 1975).

For career decision making occupations should be construed along dimensions that are most useful to the DM. These dimensions are the ones that, in the occupation, correspond to the values, aptitudes, and resources dimensions of the DM. We may label them according to the top portion of Figure 1 as Rewards, Requisites, and Investments.

Rewards. Rewards are the satisfactions (or rather, the opportunities for satisfaction) offered by the occupation. The most obvious rewards are earnings and respect, but there may be a potential for a reward corresponding to each value of the DM. As the values vary in importance for different DMs, so do rewards vary for different occupations in the amount of opportunity for getting them. These differences in opportunity are shown by the variable length of the columns in the top of Figure 1.

Requisites. Although many occupations seem remarkably tolerant of incompetence, most require some minimum level of a

variety of abilities for a worker to get into them and survive. These are called requisites in the figure. Their number may occasionally be large if one considers all the personality factors as well as performance factors that contribute to success in some occupations. Different occupations demand different combinations of abilities in different amounts, as shown by the variable length of the columns under Requisites.

Investments. Most occupations demand some sort of training and education to get into them, as well as skill and luck in getting employed. These demands are investments that DMs must make out of their resources of time, money, and energy. Again, the kind and amount of investment varies from occupation to occupation, as shown by the length of the columns in Figure 1.

Goal of the Decision

Each DM is a unique combination of values, aptitudes, and resources--unique not only in the variety of these attributes but also in the degree to which they exist, as shown by the variable height of the columns. Every DM has a different set of Et Cetera's.

Similarly, each occupation is a unique combination of rewards, requisites, and investments. Unfortunately, the two sets of combinations are not isomorphic--that is, they are by no means mirror images of each other. Long columns in the DM's portion of Figure 1 may point to short columns--or even nonexistent columns--in the

occupation portion. Since a perfect marriage with all the long columns exactly matching is highly improbable, DMs must sort through the occupations open to them to make the best match possible. Sacrifices will have to be made. How should the decision maker decide?

Ideally, the goal of the decision would be to maximize the payoff and minimize the risk. In career decisions, the payoff is the satisfaction of values; the maximization of payoff is the selection of the option whose rewards have the best fit with the DM's values. The risk is the hazard that the DM will be unable to gain entry into a selected occupation or to succeed in it. The minimization of risk is the selection of an option whose requisites and investments are comfortably embraced by the DM's aptitudes and resources.

In practice, maximizing payoff while minimizing risk is not so easy. There are several reasons.

1. The payoff and risk factors occupy separate domains, with the result that the maximization of payoff often leads to magnification of risk. For example, DMs who prize such values as high income, prestige, independence, and leadership find that occupations most rich in opportunity for satisfaction are often the most risky because they are stringent with regard to the education and training they require for entry (Chapman, 1975). Minimization of risk through selection of a less stringent occupation often produces a similar melancholy effect on payoff. Thus, like a person trying to control

the girth of a balloon, compressing one area causes a bulge in another.

2. Information necessary for assessing payoff and risk is often unreliable or unavailable. Chapman and Katz (1981) noted the almost total absence of information about rewards (in terms of capacity to satisfy specific values) in any of the career resources they surveyed. They also found much to criticize in the quality of information about abilities in the Dictionary of Occupational Titles (DOT), which is the fountainhead for the data used by numerous career information systems (Chapman & Katz, 1981; Shatkin, Note 2). Other studies have also been critical of the DOT's worker function and worker trait ratings--that is, information about what is here called requisites and investments (Miller, Treiman, Cain, & Roos, 1980; Cain & Treiman, 1981). The whole problem of getting dependable information is compounded by the fact that the individual job the DM is considering may differ in unknown ways from the occupation of which it is a specimen. For instance, local salaries may depart from the average for the occupation, or the amount of supervison may vary from site to site.

3. The maximization of values is less constrained than the minimization of risk. An occupation does not compel a worker to possess a particular value or to esteem it at some minimum level. Consequently, DMs have a certain degree of discretion in maximizing their values. They may choose to give up satisfying a value in order to preserve the opportunity to satisfy another; they may decide to maximize the satisfaction of only one or two of their values,

ignoring the others. In times of scarcity, they may decide that there is no value like necessity and take what they can get. These procedures may be painful, but they do not affect the DM's eligibility to enter the occupation.

In the domain of risks, on the other hand, there is an element of compulsion. All occupations have some threshold requirement for abilities and resources, and failure to reach the threshold excludes the aspirant from the occupation. If licensure is required for employment, or the ability to add three-digit numbers or lift 25 pounds, the DM must have the ability and resources to obtain the license or the skill to add correctly or the strength to lift. Only after these threshold requirements have been met for each option can DMs have the luxury of exercising discretion in minimizing risk.

Although we talk about the exercise of values as "discretionary," in actuality they must intrude in any decision. The thing chosen is seen as more worthy--i.e., more endowed with value--than the things not chosen. Even if the choice is for nothing, that nothing is felt as better than the alternative something that was rejected. DMs may not be aware of the values that prompt their actions. They may choose by hunch, misinformation, irrelevancies, or whatever. But at the moment of choosing, something that has to do with "more" and "less," "better" and "worse," "desirable" and "indifferent" made them choose what they did.

4. Luck plays a part in career decision making. Luck appears to be an element of the risk (as opposed to the payoff) domain. Luck is what happens by chance, and what we might carelessly call "lucky" or

"unlucky" with regard to payoff is not due to chance occurrence but to error in the assessment of values or rewards. But being at the right spot at the right time, missing an interview because of a blizzard, finding that jobs have evaporated in a recession--these are truly chance occurrences that affect the amount of risk. Since the nature of the chance occurrence is, by definition, unforeseeable, DMs have difficulty in including it in their estimation of risk. But the fact that luck may intrude means that risk cannot be minimized to the point where it vanishes. There is always a positive amount of risk.

With all these distinctions in mind, we may restate the goal of the decision as follows. It is to select the option that provides the most acceptable compromise between the satisfaction of the DM's values and the risks resulting from the application of the DM's aptitudes and resources in the face of uncertainty.

The Role of Information

Clearly, DMs need information about their occupational options in order to make intelligent choices. But since rewards, requisites, and investments take on meaning only in terms of the DMs' values, aptitudes, and resources, it is equally clear that DMs need information about themselves. Thus two classes of information are involved in career choice.

The place of information in the decision-making process is shown in Figure 2. This is merely the same as Figure 1 with the two kinds of information inserted between the DM and the occupation.

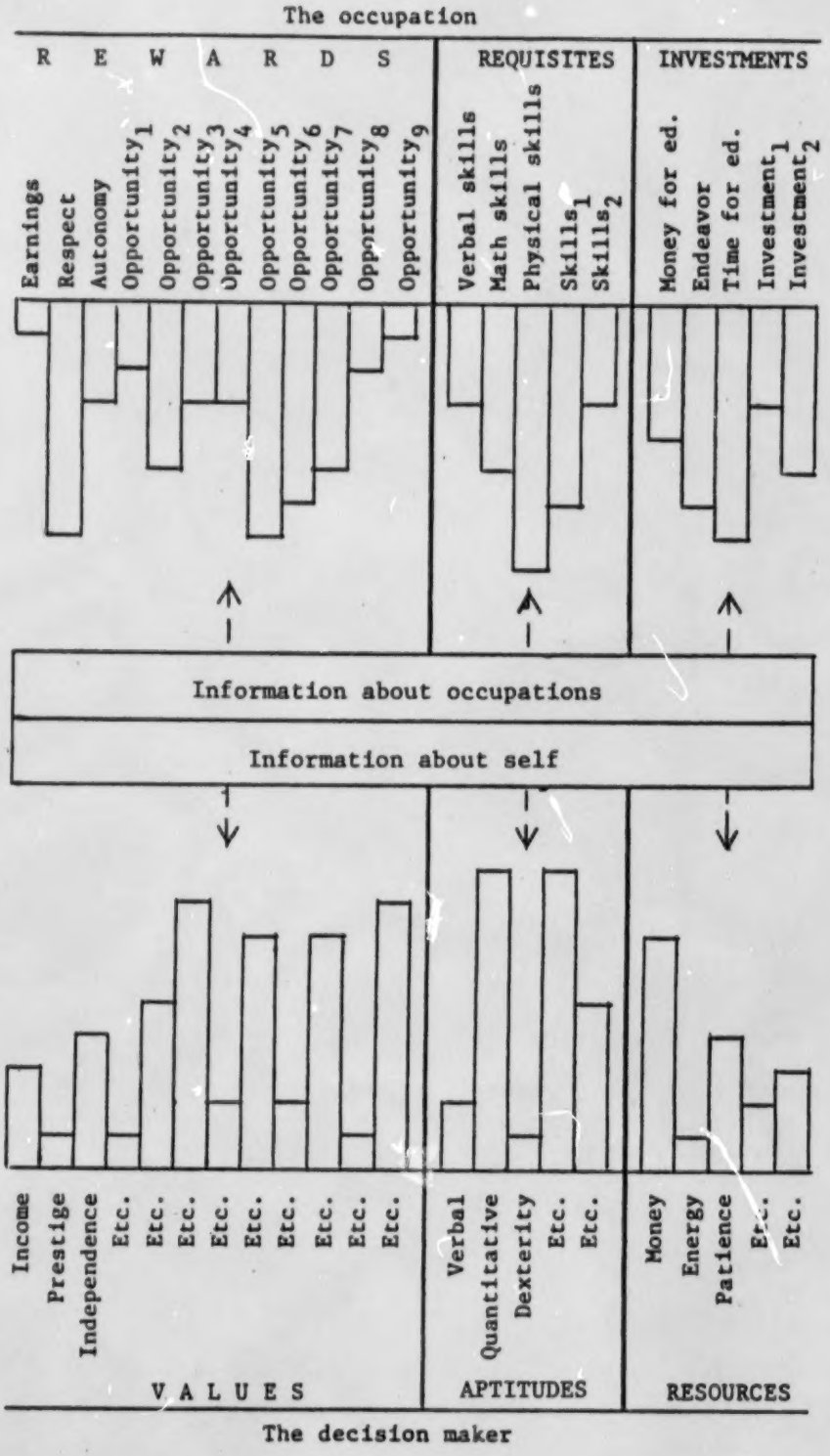

Figure 2. The function of information as a mediator between the decision maker and the occupation.

Figure 2 may be construed as follows: The DMs' information about their values generates a search for information about an occupation's capacity to satisfy them. Also information about an occupation's requisites or investments will lead to exploration of the DMs' aptitudes and resources.

The figure is incapable of showing the interactive nature of the two classes of information. For example, a DM might give great weight to High Income, Independence, and Early Entry as values. It happens that very few (if any) occupations provide good opportunities to satisfy all three of these values. This information may cause the DM to reweight the values. Are they all equally important? Would the DM sacrifice one to obtain the others? Thus information about the occupation leads to re-evaluation of information about the self. Similarly, information about an occupation may seem unexpectedly attractive, leading to the discovery of overlooked values, the reassessment of values, or the reappraisal of aptitudes and resources.

Applications of the Context

The context has several useful applications.

Development of a curriculum for career decision making. The discovery that high school students apparently use their career information resources inefficiently, when they use them at all (Chapman & Katz, 1982b), led the authors of the cited report to recommend that schools establish a curriculum for career decision

making. "This should not be in the form of a noncredit course that meets once a week or a 'unit' tucked away in the English or social science program. It should be a full-fledged course for which credit is granted and for which students are held accountable" (p. 12).

Measured against the context, most school instruction in this area is deficient in the values-rewards and the resources-investments domains as shown in the figures. Although something called "values clarification" is popular at the moment, the content of the exercises that this writer has seen is hollow and confused. Values, interests, abilities, worker traits, and resources are all mixed and treated as if they were interchangeable in function. Even the nomenclature is not uniform. Students are seldom led to weight or scale their values in order to assess their importance in relation to one another. The connection of values to occupational information, when it occurs at all, is made one value at a time, and students are given no means for arriving at the overall satisfactoriness of occupations in terms of all their values together.

In developing the System of Interactive Guidance and Information (SIGI), Martin Katz and his colleagues (one of whom is the writer) have succeeded in identifying 10 values that meet the criteria described earlier; they are relevant to occupational choice, definable, capable of discriminating between occupations, and relatively independent (Norris & Katz, 1970; Chapman, Katz, Norris, & Pears, 1977). Students are able to assign a numerical weight to the values as defined, engage in exercises to validate their weighting, and use the values in the search for compatible occupations and in

the measurement of the degree to which occupations tend to maximize satisfaction of the values.

The 10 SIGI values are shown and briefly characterized in Figure 3. Since the values are "public" rather than private (i.e., they are not defined by the personal and idiosyncratic perceptions of DMs), SIGI occupational information specialists have succeeded in rating occupations on their capacity to satisfy each value. The method of doing the rating is beyond the scope of this paper. It is a painstaking process designed to treat objectively data that are for the most part not generally perceived as quantifiable. (Of course, the DMs themselves could rate occupations on values that are idiosyncratic to the DMs.)

The result is that for this set of 10 values students have available to them a means for relating each value to its potential for satisfaction by any occupation under consideration. They can, in effect, construct a cognitive representation of the values-rewards relationships shown in Figure 1, but with numbers indicating the heights of the columns. Mathematical procedures can compute the overall desirability of the occupation for the values separately and together.

Students can be taught to apply the same paradigm to other values, such as "creativity," that they must define according to their private perceptions or circumstances. They can identify the values, define them however oddly, and use them in the search for information about potential satisfaction.

High Income--more than enough to live on.

Prestige--respect due to occupational membership.

Independence--autonomy, freedom from supervision.

Helping Others--direct helping relationship in work activities.

Security--protection from loss of job.

Variety--diversity in work activities, places, and people.

Leadership--direction of others and responsibility for their performance.

Work in a Main Field of Interest--work activities in a particularly favored interest field.

Leisure--time away from work to pursue nonwork activities.

Early Entry--quick entry into an occupation with minimum delay for education and training.

Figure 3. Ten occupational values that are used for career exploration and career decision making in the System of Interactive Guidance and Information (SIGI). They meet the criteria for utility in that they are relevant to career choice, have been operationally defined, are relatively independent (i.e., give more than redundant information), vary in desirability (i.e., none is universally embraced or rejected), and have the power to differentiate occupations.

As to resources, few models of decision making treat them explicitly. Yet much systematic information is available in the form of applications for financial aid for college. Filling out financial aid forms, looking at tuition schedules, exploring the world of scholarships--all force students to confront at least one aspect of resources. This activity can be related to career choice rather than to mere education divorced from career. Other aspects of resources, such as psychological qualities and family support, can be drawn to students' attention and treated explicitly.

The context is useful in career exploration because it transforms that activity from a hopeless attempt to process mountains of undifferentiated information into a search for specific answers to specific questions. It is useful in decision making because the quantification of values and rewards, as well as recognition of the role of requisites and investments, helps students organize their thoughts, reduce reliance on intuition, and resist being seduced by a single reward to the exclusion of all others.

Improvement of occupational information. The studies by Chapman and Katz (1981, 1982a, 1982b) referred to earlier found much to criticize. There is room is this paper for only the single most obvious deficiency. A glance at the top portion of Figure 1 will show anyone who is even slightly familiar with the most common information resources a glaring area of weakness: Where in the resource is explicit information about what is called rewards in the figure? Almost no resource contains any, except for the facts about wages. This situation exists even though recognition of values is an

"in" thing at the moment, and one would expect to find the related information about rewards. The missing information is procurable, at least for rewards that are the counterparts of the values in Figure 3 with commonly accepted definitions. But it is not stored in cans on every shelf.

Keeping things straight. The Chapman & Katz (1981) study found confusion amounting to chaos in many occupational information resources and the methods, mostly computer-based, for bringing students in contact with them. The confusions are both conceptual and procedural. A few examples will illuminate these assertions.

1. The "all the eggs in one basket" approach. Some career choice systems, as well as some information resources, tacitly assume that there is one universal value that should be applied in the matching of DMs to occupations. They do not call this principle a "value," although it functions in the same way as values function in the context described here. For example, many career choice systems require DMs to take inventories. These are scored and DMs are rewarded with a list of occupations whose activities presumably match the interests, aptitudes, or other traits revealed through the inventory. Generally no other values are considered--all the eggs in the values domain are put in the single basket covered by the inventory. It is as if the values dimension in Figures 1 and 2 consisted of a single column tremendously high.

The main problem with this approach is the assumption (seldom stated) that finding an outlet for their interests, a haven for their aptitudes, or whatever is the most important or only reward DMs can

get from an occupation. Such an assumption is, however, unwarranted. In our field test of SIGI, where we were able to observe the weights that students placed on their values, we found that Work in the Main Field of Interest was frequently not the top weighted value (Chapman, Katz, Norris, & Pears, 1977). Some students gave it zero weight--an outcome that is not surprising when you think of the number of people who find an outlet for their interests in their leisure activities, who have interests but not the ability to profit from them, or who would rather secure other rewards from their work.

There are many varieties of the "all the eggs in one basket" approach. Well known interest inventories, such as the Strong Campbell (1977) and the Self-Directed Search (Holland, 1973), put all the eggs in the basket of matching the DMs' preferences to those of workers already in an occupation. Temperaments may be treated in the same way. Here the assumption is that matching a DM's interests or preferences to the pattern found in workers already employed is the universal value. Some systems use skills or abilities as the big value. In one such system, DMs assess their skills (there are 72 of them), weight them on a four-point "Want," "Don't want" scale, and retrieve occupations that stand the best chance of employing the wanted skills. Skills are here treated as values and all other values are ignored.

The "all the eggs in one basket" approach may be useful in encouraging exploratory behavior. It brings to DMs' attention a list of occupations that are worthy of consideration with respect to the kind of eggs in the basket. But it is of little value for career

decision making. In fact, it may be counterproductive, for the manner in which it presents information misleads DMs into thinking that the contents of the single basket are all they have to think about. As far as satisfaction is concerned, the decision has already been made.

Inventories are seductive. They are convenient, counselors are familiar with them, they are cheap, they look scientific and impressive, and they yield imposing computer-generated lists. But they also mask important elements that should go into a decision.

2. The shotgun approach. In the shotgun approach, values, aptitudes, resources, interests, temperaments, worker traits are all loaded into the shell and fired at occupations in the hope of hitting one somehow satisfactory to a DM. The advent of computers has made this choice possible. In publications, information must be organized in the same linear way for all readers because one thing has to come after another. In computer systems, on the other hand, information can be organized so that it is structured in accordance with specifications imposed on it from moment to moment. No two users have to structure it in exactly the same way.

This flexibility often leads to the assumption (again, tacit) that all specifications are equivalent. Thus DMs may "program" the computer to retrieve occupations according to a sometimes wild assortment of specifications with no regard to their function in the decision-making process. In terms of the context proposed here, all such specifications would have to be classified as values because they are presented as rewards or preferences that DMs might like to

find in their work. Yet the systems do not treat them as values because the systems make no attempt to consider their relative importance or to apply them to decision making.

Again, we must separate the utility of the shotgun approach in stimulating exploration from its utility in decision making. Almost anything that stimulates exploration is probably for the good. But when it comes to decision making, the approach leaves DMs with a mass of unsorted and often contradictory information. What is a DM to do with three or four separate lists of occupations, each generated by a different interest inventory or other set of specifications? The approach implies no principle for determining what is more important and what is less, and no method for sizing up alternatives in any systematic way.

3. Related occupations. Many career choice systems offer the users the option of obtaining lists of occupations "related" to ones they are considering. The principle by which the relationship is determined is usually not stated. Are the occupations related because they tend to satisfy a similar set of values? Because they involve the same amount of education? Because the same college majors lead to entry into them? Because they draw on the same aptitudes? Because their activities involve the same interests? Because they are members of the same industrial classification? Because workers are thought to have similar "temperaments"?

Awareness of related occupations is more useful in decision making than in exploration. A DM may have to reject a desirable occupation (in terms of value satisfaction) because of insufficient

aptitudes or resources. The DM consequently wants a set of alternative candidates that are related to the rejected one in the rewards domain, but less demanding in the requisites or investments domains. The principle of relatedness in this case would be similarity of rewards. Or midcareer changers may want to see occupations that will draw on their accumulated education and experience--their resources. In that case the principle would be similarity of investments and requisites. Relatedness by industrial classification is hardly ever of any use for career decison making. In any case, the principle of relatedness should be made apparent to the DM.

Improving decision making. Almost no career choice systems offer a coherent paradigm for decision making. Their utility comes to an end with career exploration, and they are silent or vague about what DMs should do with what they found--all those candidate occupations and their relatives.

The context proposed here not only focuses exploration in a logical manner, beginning with the DM and moving from there to occupations, but also helps organize the process of decision making. It establishes a goal: the maximization of values satisfaction within the limits of aptitudes and resources. It presents a method for quantifying the extent to which candidate occupations satisfy known values. And it directs the DM's attention to the role of aptitudes and resources and distinguishes them from values. It helps keep one class of information from being confused with another.

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